

## Abstract

Data communication over a block-coherent channel in a communication system is described. Low-complexity demodulation techniques that allow good performance are described. A dwell, e.g., a set of block coherent symbols transmitted including a known symbol, e.g., a pseudo pilot symbol, are received, demodulated and decoded by a joint decoder/demodulator employing soft inputs, soft outputs, and interleaving of messages. Low-complexity SISO demodulator is suitable for processing pseudo-pilot modulated information corresponding to each of one or more dwells. The low-complexity method achieves good performance when turbo equalization is used. Some decoding and demodulation embodiments include independent phase estimates and updated independent phase estimates following the extrinsic principle to generate soft symbol values and soft bits.